

REMARKS

Applicant thanks the Examiner for the thorough consideration given the present application. Claims 13 and 14 were previously cancelled without prejudice to or disclaimer of the subject matter contained therein. Claims 1-12 and 15 are pending. Claims 1, 6, 7 and 12 are amended, and claim 15 is added. Claims 1, 7 and 15 are independent. The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein.

Allowable Subject Matter

The Examiner states that claim 11 is objected-to, and would be allowable if rewritten in independent form to include the subject matter of the base claim and any intervening claims. In response,

each of independent claim 1 and 7 has been amended to include a combination of features not taught or suggested by the references cited by the Examiner, and
independent claim 15 has been added to combine the subject matter of claims 7, 9, and 10 with the allowable subject matter of objected-to claim 11.

Therefore, independent claims 1, 7, and 15 are in condition for allowance.

Examiner Interview

If, during further examination of the present application, a discussion with the Applicant's Representative would advance the prosecution of the present application, the

Examiner is encouraged to contact Carl T. Thomsen (Registration No, 50,786) at 1-703-208-4030 (direct line) at his convenience.

Rejection Under 35 U.S.C. § 112, second paragraph

Claims 1 and 7 stand rejected under 35 U.S.C. § 112, second paragraph. This rejection is respectfully traversed.

The Examiner has set forth certain instances wherein the claim language is not clearly understood.

In order to overcome this rejection, the Applicant has amended claims 1 and 7 to correct each of the deficiencies specifically pointed out by the Examiner. The Applicant respectfully submits that the claims, as amended, particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 101

Claims 1-6 stand rejected under 35 U.S.C. § 101. This rejection is respectfully traversed.

In order to overcome this rejection, the Applicant has amended claim 1 so that it is tied to a particular apparatus, as is required. The Applicant respectfully submits that claims 1-6 are now directed to a statutory category of invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-4, 6-10, and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Martins (U.S. Patent 6,950,123), in view of Averbuch et al. (U.S. Patent 7,085,401).

This rejection is respectfully traversed.

Amendments to Independent Claims 1 and 7

While not conceding the appropriateness of the Examiner's rejection, but merely to advance the prosecution of the present application, each of independent claims 1 and 7 has been amended, respectively, to recite a combination of method steps (or apparatus), for eliminating an individual line segment, including *inter alia*

"... selectively extracting the individual line segment having only two end points from the line-shaped image object;

... eliminating the line-shaped image object from the moving image object;

... scanning a vicinity region of the individual line segment having only two end points on the moving image object and sequentially extracting pixels to be scanned;

... determining whether or not the extracted pixels to be scanned are the effective pixels; and

... dropping a perpendicular from the pixels to be scanned that are determined to be the effective pixels at the effective pixel determination step to a nearest line segment and setting each individual pixel on the perpendicular as the effective pixels."

For support, see for example, paragraphs [0047], [0048], and [0052], and FIGS. 3 and 4, and paragraphs [0065] to [0067] and FIG. 6 of the present application as published in U.S. Patent Publication No. 2007/0092158, which clearly disclose “selectively eliminating an individual line segment having only two end points from a line-shaped image object”, and

“dropping a perpendicular from the pixels to be scanned that are determined to be the effective pixels at the effective pixel determination step to a nearest line segment and setting each individual pixel on the perpendicular as the effective pixels.”

In contrast to the present invention, the Martins document merely discloses “when eliminating line-shaped image objected from the entire image including moving objects, the line-shaped image object means a field area bounded by multiple line segments (for example, a quadrangle, triangle...)

In other words, Martins teaches eliminating an entire field area of shaped image objects bounded by the multiple line segments, whereas the present invention ONLY eliminates a line segment having only two end points, and does NOT eliminate any of the area adjacent to the line segment having only two end points.

With the present invention, pixel interpolation is easier and is highly reproducible than with the method of Martins, because the present invention selectively eliminates individual an line segment. By contrast, the Martins method eliminates an entire field area bounded by multiple line segments of a line-shaped image. Thus, because of eliminating the entire field area of the line-shaped image, Martins has a wasted area in the image.

In view of the above, Martins cannot teach or suggest the present invention as set forth in each of independent claims 1 and 7.

As previously argued, in Averbuch et al. (U.S. Patent 7,085,401 B2), the object in the binary image has a bounding contour composed of polygons that may have missing pixels. As for the procedure to fill the missing pixels, Averbuch et al. merely choose the lowest real point on the polygon that was derived in the previous step, and take the perpendicular line of the lowest pixel. Then Averbuch et al. draw a line after line in a clockwise direction until they hit another existing pixel on the polygon (Column 26).

Thus, Averbuch et al. cannot make up for the deficiency of Martins to teach or suggest the present invention.

At least for the reasons explained above, the Applicant respectfully submits that the combination of features set forth in each of independent claims 1 and 7 is not disclosed or made obvious by the prior art of record, including Martins and Averbuch et al.

Therefore, independent claims 1 and 7 are in condition for allowance.

Independent Claim 15

As noted above, independent claim 15 has been added to combine the subject matter of claims 7, 9, and 10 with the allowable subject matter of objected-to claim 11.

Therefore, independent claim 15 is in condition for allowance.

Dependent Claims

Dependent claims 6 and 12 have been amended.

All dependent claims are in condition for allowance due to their dependency from allowable independent claims, or due to the additional novel features set forth therein.

All pending claims are now in condition for allowance.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are respectfully requested.

CONCLUSION

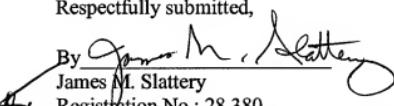
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone Carl T. Thomsen (Reg. No. 50,786) at (703) 208-4030(direct line).

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

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Respectfully submitted,

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